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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/224,637	12/31/1998	YUVAL OFEK	E0295/7080	3449

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EXAMINER

VITAL, PIERRE M

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 05/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/224,637

Applicant(s)

OFEK ET AL.

Examiner

Pierre M. Vital

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/22/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 22 April 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed April 22, 2003 in response to PTO Office Action mailed January 17, 2003. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.
2. Claims 1-28 have been presented for examination in this application. In response to the last Office Action, claims 11 and 19 have been amended. No claims have been added or canceled. As a result, claims 1-28 are now pending in this application.
3. The objection to the drawings has been withdrawn due to the amendment filed April 22, 2003.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11, 12, 14, 16-24, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Bergsten (US6,282,610).

As per claim 11, Kullick discloses a plurality of host computers [Figure 1, elements 18; col. 4, line 66-col. 5, line 2]; a plurality of primary storage devices to receive and store data in the devices [Figure 1, elements 14]; each primary storage device being associated with at least one of the host computers [column 3, lines 3-5]; a secondary storage device to receive and store data in the device coupled to a plurality of the primary storage devices [column 1, lines 32-34], the secondary storage device being configured to receive backup data from each of the host computers [column 3, lines 7-10].

However, Kullick fails to specifically teach that the plurality of host computers are heterogeneous and that they comprise a first computer comprising a first platform and a second computer comprising a second platform different from the first platform as recited in the claim.

Bergsten discloses a heterogeneous plurality of host computers comprising a first computer comprising a first platform and a second computer comprising a second platform different from the first platform [*two or more hosts may be dissimilar and have different configurations*; Fig. 1; abstract; col. 4, lines 51-56].

It would have been obvious to one of ordinary skill in the art, having the teachings of Kullick and Bergsten before him at the time the invention was made, to modify the system of Kullick to include a heterogeneous plurality of host computers comprising a first computer comprising a first platform and a second computer comprising a second platform different from the first platform because it would have provided a storage controller capable of providing multiple host computers system with

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access to multiple storage arrays by allowing the data communications path to conform to different protocols and standards and be independent of the particular hardware and software configuration of any host computer [col. 4, lines 44-56; col. 22, lines 12-14] as taught by Bergsten.

As per claim 12, the use of cached disk array is well known in the state of the art.

As per claim 14, Kullick discloses a secondary storage device including a plurality of ports coupled to the network to send and receive data on the network in parallel [column 4, lines 54-63].

As per claim 16, Kullick discloses transferring a first logical object from one of the primary storage devices directly to the second storage device directly over a first connection [column 3, lines 3-10].

As per claims 17, Kullick discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [column 3, lines 14-24].

6. As per claim 19, Kullick discloses the claimed invention as detailed per claims 1, and 16 above. Kullick further discloses automatically establishing a first connection through a network from a first one of the primary storage elements *{i.e., primary storage device contacts secondary storage device}*, which serves as primary storage for a host computer coupled thereto *{i.e., computer device 18 may be relocated, thus primary storage device*

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serves as primary storage}, to the secondary storage element to transfer a first logical object to the secondary storage element [column 11, line 53 - column 11, line 20].

However, Kullick fails to specifically teach that the primary storage element is a non-backup storage as recited in the claim.

Bergsten discloses a primary storage element is a non-backup storage [col. 18, lines 14-36].

It would have been obvious to one of ordinary skill in the art, having the teachings of Kullick and Bergsten before him at the time the invention was made, to modify the system of Kullick to include a primary storage element is a non-backup storage because it would have avoided the potential for a single-point failure in the system by allowing the secondary storage controller to function as hot backup in the event of failure of the primary storage controller [col. 17, lines 50-67] as taught by Bergsten.

As per claims 20, Kullick discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [column 3, lines 14-24].

Claim 21 is rejected as per claim 14 above.

Claim 22 is rejected as per claim 11 above.

As per claim 23, Kullick discloses automatically establishing a path through a network [column 3, lines 3-13; column 4, lines 45-49].

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As per claims 18 and 24, the use of a tape library unit is well known in the state of the art.

As per claim 27, Kullick discloses the claimed invention as detailed per claim 11 above. Kullick further discloses a secondary storage device configured to receive backup data from at least one the primary storage devices without involving the host domain *{i.e., primary storage device initiates backup to secondary and host may be relocated}* [column 11, lines 12-20].

As per claim 28, Kullick discloses the claimed invention as detailed per claim 19 above. Kullick further discloses a transferring a first logical object from a first one of the primary storage elements directly to a secondary storage device without involving the host domain *{i.e., primary storage device initiates backup to secondary and host may be relocated}* [column 11, lines 12-20].

7. Claim 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Bergsten (US6,282,610).

As per claims 15 and 25, Kullick and Bergsten fail to teach a secondary storage device comprising data movers as recited in the claims. Official Notice is taken that both the concept and the advantages of providing for storage devices, which include data movers, are well known and expected in the art.

It would have been obvious to one of ordinary skill in the art to include the data movers in Kullick as these data movers are known to provide a means for communication between the backup devices and the network.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) Bergsten (US6,282,610) and Kopper (US5,535,381).

As per claim 13, Kullick and Bergsten disclose the claimed invention as detailed above in the previous paragraphs. However, Kullick and Bergsten do not specifically teach means for forming an abstract block set from a logical object stored in one of the primary storage devices as recited in the claims.

Kopper discloses means for forming an abstract block set from a logical object stored in one of the primary storage devices [col.2, line 54 - col. 3, line 54].

It would have been obvious to one of ordinary skill in the art, having the teaching of Kullick and Bergsten and Kopper before him at the time the invention was made to modify the system of Kullick and Bergsten to include means for forming an abstract block set from a logical object stored in one of the primary storage devices as taught by Kopper because it would have facilitated communication between the computer and its disk storage device by mapping the file system into corresponding logical addresses on a logical disk [col. 2, lines 50-60] as taught by Kopper.

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9. Claims 1-8, 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Beardsley et al. (US5,680,580).

As per claim 1, Kullick discloses a host domain including a host computer [Figure 1, element 18]; a storage domain, coupled to the host domain, the storage domain comprising: a plurality of primary storage devices for the host domain, at least one of the primary storage devices to provide storage for the host computer *{i.e., computer device 18 may be relocated, thus primary storage device serves as primary storage}* [Figure 1, element 14]; a secondary storage device [Figure 1, element 16]; a network coupled to the plurality of primary storage devices and to the secondary storage device to permit one of the primary storage devices to access the secondary storage device through the switched network [Figure 1, element 12; column 4, lines 45-53].

However, even though Kullick discloses a communication network, the reference fails to specifically teach that the use of a switched network as recited in the claim.

Beardsley discloses the use of a switched network connecting primary and secondary storage devices for data backup [col. 7, lines 48-64].

It would have been obvious to one of ordinary skill in the art, having the teachings of Kullick and Beardsley before him at the time the invention was made, to modify the system of Kullick to include the use of a switched network connecting primary and secondary storage devices for data backup because it would have provided quicker communication since data can be back-up directly to secondary storage controllers and the primary host need only wait until the data or records are received in secondary storage controllers cache [col. 7, lines 58-64] as taught by Beardsley.

As per claim 2, Kullick discloses a primary storage device coupled directly to a secondary storage device [column 3, lines 5-7].

As per claim 3, the use of cached disk array is well known in the state of the art.

As per claim 4, Kullick discloses a secondary storage device including a plurality of ports coupled to the network to send and receive data on the network in parallel [column 4, lines 54-63].

As per claim 6, Kullick discloses a plurality of heterogeneous host computers [Figure 1, elements 18; col. 4, line 66-col. 5, line 2]; a plurality of primary storage devices to receive and store data in the devices [Figure 1, elements 14]; each primary storage device being associated with at least one of the host computers [column 3, lines 3-5]; a secondary storage device to receive and store data in the device coupled to a plurality of the primary storage devices [column 1, lines 32-34], the secondary storage device being configured to receive backup data from each of the host computers [column 3, lines 7-10].

As per claim 7, Kullick discloses transferring a first logical object from one of the primary storage devices directly to the second storage device directly over a first connection [column 3, lines 3-10].

As per claim 8, Kullick discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [column 3, lines 14-24].

As per claim 10, the use of a tape library unit is well known in the state of the art.

As per claim 26, Kullick discloses the claimed invention as detailed per claim 1 above. Kullick further discloses a primary storage device accessing a secondary storage device without involving the host domain *{i.e., primary storage device initiates backup to secondary and host may be relocated}* [column 11, lines 12-20].

As per claim 5, the combination of Kullick and Beardsley fail to teach a secondary storage device comprising data movers as recited in the claims. Official Notice is taken that both the concept and the advantages of providing for storage devices, which include data movers, are well known and expected in the art.

It would have been obvious to one of ordinary skill in the art to have included the data movers in Kullick and Beardsley as these data movers are known to provide a means for communication between the backup devices and the network.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kullick et al. (US5,751,997) and Beardsley et al. (US5,680,580) and further in view of Kopper (US5,535,381).

As per claim 9, Kullick and Beardsley disclose the claimed invention as detailed above in the previous paragraphs. However, Kullick and Beardsley do not specifically teach means for forming an abstract block set from a logical object stored in one of the primary storage devices as recited in the claims.

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Kopper discloses means for forming an abstract block set from a logical object stored in one of the primary storage devices [col.2, line 54 - col. 3, line 54].

It would have been obvious to one of ordinary skill in the art, having the teaching of Kullick and Beardsley and Kopper before him at the time the invention was made to modify the system of Kullick and Beardsley to include means for forming an abstract block set from a logical object stored in one of the primary storage devices as taught by Kopper because it would have facilitated communication between the computer and its disk storage device by mapping the file system into corresponding logical addresses on a logical disk [col. 2, lines 50-60] as taught by Kopper.

Response to Arguments

11. Applicant's arguments with respect to claims 11-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111 (c) to consider these references fully when responding to this action. The documents cited therein teach switched network, and storage backup.

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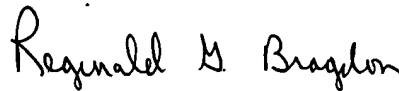
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (703) 305-3821. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9000.



Pierre M. Vital
May 22, 2003



REGINALD G. BRAGDON
PRIMARY EXAMINER